Instruction Manual

AEA MODEL CK-2

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Congratulation on your decision to purchase the versatile AEA Contester. You will find it is truly a gem for CW operation.
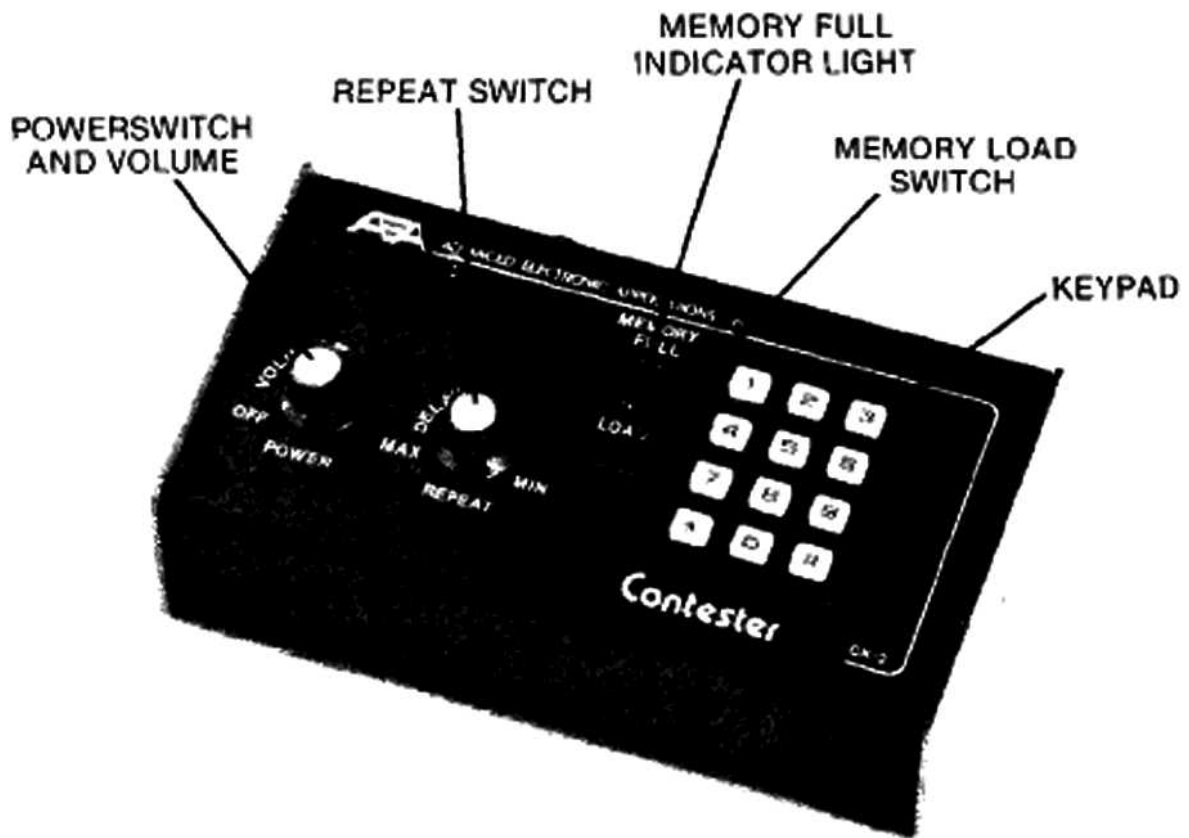
The Contester has two basic modes of operation. With the Memory Load Switch, you may select memory load or memory send function. Control for each mode is then transferred to the keypad for full feature programming.

Once you have read the directions in full, you will be able to send any one of up to ten preprogrammed messages at the touch of a button. The memory includes a flexible automatic serial number generator. You will also be able to use the automatic repeat mode. And last but not least, you will have a programmable keyer with selectable speed, tone, dot-dash ratios and automatic and semiautomatic (bug) capabilities.

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TOP PANEL DESCRIPTION

POWERSWITCH
AND VOLUME

REPEAT SWITCH

MEMORY FULL
INDICATOR LIGHT

MEMORY LOAD
SWITCH

KEYPAD

TO CATHODE OR TRANSISTOR
KEYED TRANSCEIVERS

TO GRID BLOCKED
KEYED TRANSCEIVERS

PADDLE

POWER
SOCKET

─OUTPUT─

MADE IN U.S.A.

+ KEY   – KEY   PHONES   PADDLE   POWER
                                   10 - 15 VDC
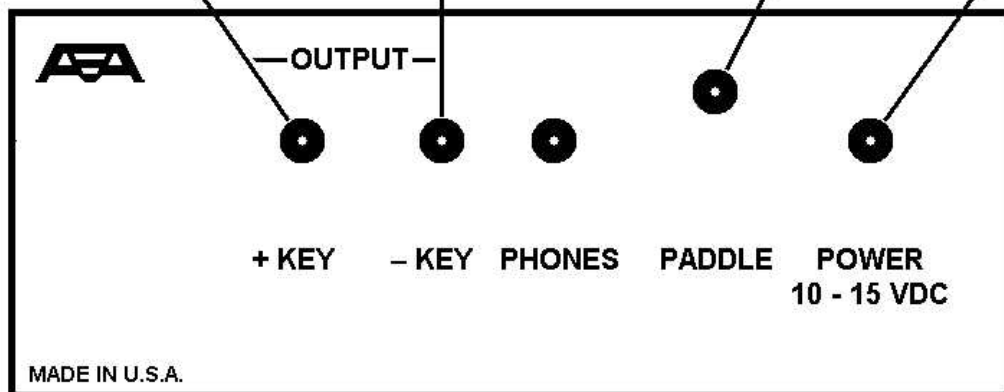
REAR PANEL DESCRIPTION

HOOK-UP INSTRUCTIONS

1. **Power**
   To Perform the Check-Out Procedures in the following section and familiarize yourself with the CK-2 it is first necessary to apply 13 volts to the power input jack on the Rear Panel of the CK-2. This may be easily accomplished by connecting the cord attached to the optional AC-1 or AC-2 wall adapter to the power socket on the Rear Panel of the CK-2.

   If you do not have one of the optional power supply units, it is necessary to supply 10 to 15 volts DC to the CK-2 from any external source (including batteries) capable of delivering at least 200 ma. Use the mating power connector supplied for interfacing the the CK-2 and the power source. BE SURE TO OBSERVE PROPER POLARITY. The center pin is positive. The CK-2 may be used in an automobile by using the optional DC-1 power cord.

2. **Paddle**
   Wire your external keyer paddle to a stereo phone plug using two conductor plus shield cable (available from any Radio Shack store). Connect the shield to paddle common and the other wires to the dot and dash contacts. By convention, for right-handed operators, the thumb should activate the dot contact and the index and middle fingers should operate the dash contact.
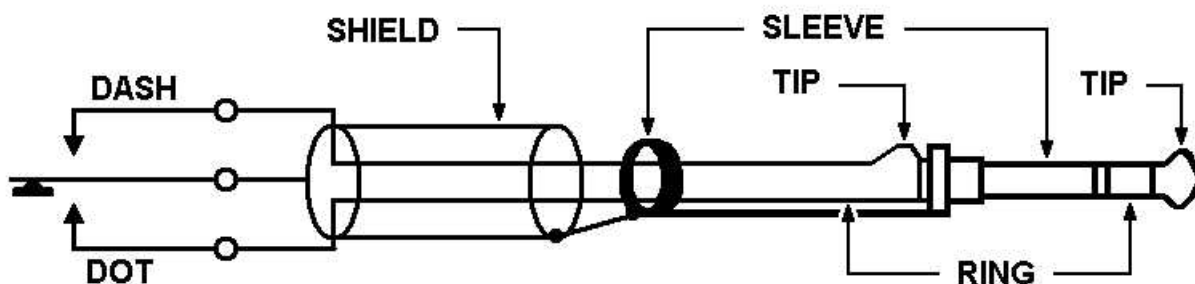
3. **Straight Key**
   A straight key may be used for sending, but cannot be used for memory operations. Use a stereo plug with the key across the tip (dash) terminal and the sleeve (common) terminal. The CK-2 must programmed for Semiautomatic mode. It is **not** possible to load memory with a straight key.

4. **Transmitter**
   The Contester will key virtually any modern amateur radio transmitter. There are two output jacks which are diode protected against inadvertent hook-up to the wrong keying polarity. The ground side of the RCA phono jack (keyer output) should be connected to the transmitter chassis ground on the key input jack. The center conductor of the CK-2 keyed output jack should be connected to the "hot" terminal of the transmitter key input jack. Use a shielded coaxial cable for best R.F. immunity. Use the + keyed output jack to key cathode keyed and most transistor keyed transmitters. Use the – keyed output jack to key grid-block keyed and some transistor keyed transmitters. If you connect your transmitter key input to the wrong CK-2 keyed output, either the transmitter will not key, or it will be keyed continuously. To correct the situation, simply plug the output line into the other output jack. No damage should occur to either the transmitter or the CK-2 if you connect to the wrong keyed output jack!

CHECK-OUT PROCEDURE

We recommend that you perform the following functions to quickly acquaint yourself with the Contester and to ensure the unit is operating properly.

Keyer Send Mode

1. Turn the power switch on.

2. On the keypad, press and release [*][1], then hold your finger on [1]. The monitor tone will increase in frequency.

3. Press [*][*][1] and hold [1]. The monitor tone will decrease in frequency.

4. Send a series of letters with the external paddle to "get a feel" for the perfect code the CK-2 produces.

5. Press [*][2][0][#][7] and send more Morse characters. Note that the length of the dots has shortened by one half.

6. Press [*][*][2][2][4][#][0]and send more Morse characters. Note that the length of the dashes has increased by four-thirds.

7. Turn the power switch off and back on. The monitor tone will return to 500 Hz and the dot and dash ratios will return to perfect 1:1 and 3:1 respectively.

8. Press [*][*][8][0][2] and note that the speed has slowed to 2 WPM.

9. Press the dot paddle and very quickly (before the dot has finished sending) press the dash paddle and then let up quickly. After the dot has finished and a proper intracharacter space inserted, a dash will automatically be sent. This is called **Dash Memory**.

10. Similar to step 9, press the dash paddle quickly and then press the dot paddle momentarily. After the dash is finished and an intracharacter space is inserted (automatically), the Keyer will send a dot automatically This is called **Dot Memory** or **automatic dot insertion**.

11. Press [*][3] and repeat step 10. Note that the Dot Memory is no longer present.

12. Press [*][4] and repeat step 9. Note that the Dash Memory is no longer present.

13. Press [*][*][3] and then [*][*][4]. Note that both Dot and Dash Memories are re-enabled.

14. Enter [*][*][8] and a two digit number corresponding to a sending speed you feel comfortable with. (If less than 10 WPM use 0 as the first digit.) Practice sending at that speed for about a minute. Because the CK-2 has almost perfect dot and dash ratios and spacing, many operators feel the speed calibration is low. Actually the CK-2 probably has the best speed calibration on the market. It is calibrated using the FCC definition of "PARIS" being the standard word. (See Appendix B.) You might also note that many practice code tapes are actually faster than the advertised speed.

15. Press [*][*][6] and note that a tone will appear as long as you hold the dash paddle. This is called **Semiautomatic** or **"Bug" mode**. Turn the unit off and back on and the keyer will return to fully automatic operation.

16. Press [*][*][5] and very quickly release the [5] button before the feedback tone stops. The CK-2 should then key continuously until you press any keypad button or touch either paddle. This is the **Automatic Tune** feature. The automatic Tune feature does not operate in the Memory Load mode. (If you hold the ⑤ button down, the CK-2 will not go into the Tune mode.)

Memory Load Mode

1. Many of the steps you went through in the KEYER SEND mode could be repeated in MEMORY LOAD mode. To enter the memory load mode set the memory switch to LOAD, and note the LED will come on.

2. Press [1][#], [2][#], [3][#], [4][#], [5][#], [6][#], [7][#], [8][#], [9][#], [0][#]. This will clear all the memory locations. Verify this by switching the Mode Switch out of memory load. Press any **numbered** button on the keypad. Nothing but a feedback tone should result, indicating the storage location is empty.

3. Return the memory switch to LOAD. Press [1] and send a short message, one word at a time, with the paddle. Upon completion of the message, press the [#] button which terminates message loading.

4. Switch out of LOAD and press [1]. Immediately upon release of [1] the message you recorded will be sent. You may change speeds if you like and repeat the message again by pressing [1].

5. Press [1] and play back the message again. Between words in the message playback, press the dot paddle and hold momentarily. The message will halt without inserting an extra dot. Now you may send anything with the paddle. By pressing [*][5], the message will resume sending from where you interrupted the message. This is a very useful feature for inserting a signal report, for example, in the middle of a message.

6. Return the memory switch to LOAD and press [2]. With the paddle, key in the word "test" and press [*][*][8][*][*][8][*][*][8]. Again, with the paddle, send "test" and then press [*][*][8][*][*][8]. Now send "test" again with the paddle and press [*][*][8]. Send "test" one more time, followed by the letter "K" with the paddle. Press [#] to terminate the message.

7. Switch to memory LOAD and press [2] on the keypad. The message should play back a series of the word "test" with progressively shorter spaces between words.

8. Switch to memory LOAD and press [*][9] to enter the REAL TIME memory loading mode. Press [3], pause for a short while and then send a message, one word at a time, with the paddle. Terminate the message by pressing [#].

9. Switch out of memory LOAD and press [3]. Immediately, upon release of [3], the message will commence playing back with the exact same pauses as were present between words during the loading operation. This is called the REAL TIME Loading Mode. The other (AUTO WORD SPACE) loading mode will insert a maximum of one word space between characters unless you use the [*][8] or [*][*][8] instruction in the loading operation.

10. Switch to memory LOAD and press [*][*][9]. Now press [4] and send "NR" with the paddle and press [*][0] which inserts the Serial Number Generator at this point in the message. Now send "K" with the paddle and terminate the message by pressing [#] on the keypad.

11. Switch out of LOAD and press [4]. The Keyer should play back: NR 01 K. Press [4] again and the Keyer should play back NR 02 K. Now press [*][0] and then [4]. The Keyer should now play back NR 02 K again (It repeated the same serial number.) Now press [*][*][0][1][6][1][#] and then press [4] again. Now the message should read NR 161 K.

12. Press [4] again and press the dot paddle between 162 and K to halt the message (right after the serial number).

13. Return the Mode Switch to LOAD and press [*][5] (for Edit). Now, with the paddle, send DE K1XX K. Press [#] to terminate the message loading.

14. Switch out of memory LOAD and press [4]. The message should now read "NR 162 DE K1XX K". You have just edited your old message!

15. Now press [4] again and play back the message until NR 163 DE and press the dot key paddle to hold the message ahead of K1XX. Switch the memory switch to LOAD and press [*][5] to edit. With the paddle send "K1XX" and (without pressing [#]) switch the memory switch out of LOAD mode.

16. Press [4] and and the message should now read "NR 164 DE K1XX K1XX". You have just edited a message by inserting a word in the middle!

17. Now switch the memory switch to LOAD and press [4] and send "TEST" with your paddle. Without pressing [1] return the memory switch from the LOAD mode and press [4]. The message should now read "TEST NR 165 DE K1XX K1XX K". You have now edited the message by adding on to the front of the message.

Automatic Message Repeat

1. Switch the memory switch to LOAD and press [1]. Send "CQ CQ DE K1XX K1XX K", press [#] and switch out of LOAD.

2. Turn the repeat switch/pot clockwise until the repeat LED lights. Turn the pot all the way clockwise until the message you loaded into location 1 is automatically activated. A delay time of up approximately two minutes is possible with the CK-2.

3. In the middle of the message playback in the repeat mode, try tapping the paddle to interrupt the message. Note that no additional character is transmitted until after you let up on the paddle /the first time) and then commence sending. When no characters have been manually sent for a period of time equal to the delay setting, the CK-2 will automatically start sending message 1 again.

OPERATING INSTRUCTIONS

General

The AEA Keyer Model CK-2 has been designed for the serious CW operator. It features a versatile memory load and edit capability, automatic serial number, rapid CW speed changes and full weighting control.

Keyer Operation

1. **Speed Change and Set**
   Two methods of CW speed control are available, variable and preset.

   Preset Speed
   Two presentable speeds may be stored and quickly recalled. To store speed "A", press [#][#][8][N][N], when N N is the two digit speed in WPM desired. Similarly, for storing speed "B", press [*][*][9][N][N].

   The keyer will be set to the last speed entered.

   When the keyer is turned on, speeds "A" and "B" are initialized to 20 and 30 WPM respectively. To recall speed "A", press [*][8] and to recall speed "B", press [*][9].

   Example: To store 5 and 15 wpm in speeds "A" and "B":
   Press [*][*][8][0][5],
   [*][*][9][1][5].

   Now, to change from 15 wpm to 5 wpm, press [*][8]. To change back to 15, press [*][9].

   Variable Speed Adjustment
   A "variable" speed setting is also available. To increase speed, press [*][6] and hold the '6' until the desired speed is reached. The keyer will send alternating dots and dash during the change. To reduce speed, press [*][7] and hold the '7'.

2. **Sidetone Change**
   The sidetone is set to 500 Hz when the keyer is turned on. To increase the pitch press [*][1] and hold the '1' key until the desired tone is reached. The tone may be lowered by pressing [*] twice and holding the '1', i.e. [*][*][1].

   The pitch of the tone when the '1' key is released will be the pitch of the CW sidetone. The pitch of the keypad feedback tone will be lower.

3. **Automatic or semi-automatic (bug) operation**
   When the keyer is turned on, it is set for automatic, iambic operation. The keyer may be operated in the semi-automatic mode by pressing [*][*][6]. The keyer will now behave as a "bug". To return to full automatic operation, press [*][*][7].

4. **Dot-Space, Dash-Space Ratios (Weighting)**
   "Perfect" Morse code is formed with the length of a dot equal to the intracharacter space length (a dot-space ratio of 1.0) and the the length equal to three space times (a dash-space ratio of 3.0).

   The dot-space ratio is adjustable from 0.5 to 1.5 and is set to 1.0 on turn-on. To change the dot-space ratio, press [*][2] and enter the dot ratio using the pound key [#] as a decimal.

   Example: To enter a dot-space ratio of 0.7 press [*][2][0][#][7] or [*][2][*][7].
   To enter a dot-space ratio of 1.3 press [*][2][1][#][3].

If the dot-space ratio entered exceeds 1.5 or is less than 0.5, the ratio will be set to 1.0.

The dash-space ratio is set to 3.0 on turn-on and is adjustable from 2.0 to 4.0. To change the dash ratio, enter [*][*][2] and the new dash ratio.

Example: A dash-space ratio of 3.7 is desired; press [*][*][2][3][#][7].

If the dash-space ratio entered exceeds 4.0 or is less than 2.0, the ratio will be set to 3.0.

The code speed is automatically adjusted for other than "perfect" dot and dash, ratios and is based on the word "PARIS".

When a new dot-space or dash-space ratio is entered, the code speed will revert to the last speed entered via "[*][*][8] or [*][*][9]". If no speed has been entered after turn-on, the keyer will revert to 15 WPM after a dot or dash ratio change. If the variable speed change feature has been used before changing the ratio, the speed will also revert to 15 WPM.

5. **Dot and Dash Memories**

The selectable Dot and Dash Memories are enabled on turn-on. The Dot Memory allows insertion of a dot during a string of dashes. For example, the letter "Q"could be sent as follows:
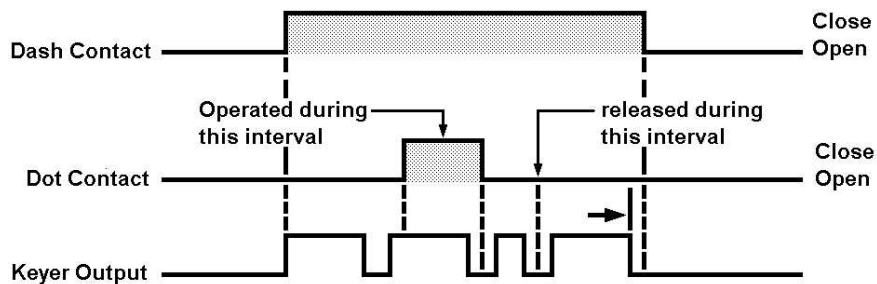
The Dash Memory operates in the same fashion, allowing the insertion of a dash in a string of dots.

To disable the Dot Memory, press [*][3].
To enable the Dot Memory, press [*][*][3].
To disable the Dash Memory, press [*][4].
To enable the Dash Memory, press [*][*][4].

Full iambic operation is available with the dot and dash memories enabled or disabled. This feature is useful for generating characters with alternating dots and dashes like the period and the letter "C". To utilize this feature, hold both the dot and the dash paddles.

6. **Transmitter Tuning**

To allow transmitter tuning, the keyer output transistors will be operated upon pressing [*][*][5]. **The [5] key must be released quickly before the keypad tone is completed**. Tuning will be terminated by pressing **any** pad button or touching the dot or dash key paddle.

The tune feature does not operate in the memory LOAD mode.

7. **Mistakes**

Incomplete, undesired entries may be terminated by pressing [#]. Unacceptable entries will be ignored. For example, if a speed change were entered [*][*][8][2][#], the result will be no speed change.

Memory Operation

1. **Memory Locations**
   The AEA CK-2 has ten separate, variable length memory locations. The total memory length is about 500 characters (the actual length is dependent on the length of the characters, the length and number of pauses, etc.), which may be divided into the ten locations in any fashion. Each memory location length is automatically adjusted during message loading.

2. **Memory loading**
   Two methods of memory loading are available, Real Time loading and Automatic character and word space loading. In both modes memory loading does not begin until the first character is started. This prevents the undesirable pause at the beginning of the message playback. Messages may also be loaded in semi-automatic (bug) mode.

   Real Time Memory Loading. To select Real Time loading, set the mode switch to LOAD (toward the LED) and press [*][9] Select the message location desired, 0 through 9, and press the location digit. Memory loading will begin with the first character and all pauses in sending will be loaded as sent (pauses use memory space). When message loading is complete, press [#] to terminate the message load.

   Automatic Memory Loading. The keyer is set to automatic memory load on turn-on. If real-time load has been selected, automatic memory load may be re-selected by pressing [*][*][9] when the mode switch is in the LOAD position.

   In automatic message loading, a pause in sending longer than two space lengths records a character space (three intra character spaces). If the pause is longer than five space length, a word space is recorded (seven intra character spaces), loading then stops until the next character is started.

   To record a message, set the mode switch to LOAD, press the message location digit, key in the message and terminate the message with the pound sign key [#].

   Example: To store a message in memory location 5, set the mode switch to LOAD and press 5. Now enter the message with the key. IMPORTANT: After the message is entered press [#] to signal the end of the message.

3. **Memory Erase**
   Power is supplied to the memory from the 13 V source, or the internal batteries (AA size). To erase one of the memory locations, switch to memory LOAD, press the location number and then [#]. The entire message in that location will be erased.

   Example: Erase messages 3 and 7, switch to memory LOAD, press [3][#][7][#] or [7][#][3][#].

4. **Memory Retention**
   When 13 V power is first applied the memory will contain random characters. These random characters should be erased (see previous section) before high speed loading is attempted.

   The CK-2 has provision for memory keep-alive when external power is removed. To enable this feature, carefully remove the bottom cover (4 screws) and install two AA cells (not supplied) in the battery holder mounted on the cover. These cells are automatically switched on when external power is removed, and will last for up to one year.

5. **Maximum Loading Speed**
   Loading speeds up to 99 wpm are permissable if memory locations higher than the location being located are empty or contain short messages. If, for example, memory location 5 contains about 300 characters and high speed message loading is attempted in locations 0 through 4 a pause between every two dots and/or dashes will occur. To prevent this either reduce loading speed, erase the long message or load the new message into a higher memory location.

6. **Serial Number Load and Set**
An automatically incremented serial number may be inserted anywhere in any of the ten messages. It may also be inserted as many times as desired within a message. The serial number is incremented just as the message is completed.

To insert the automatic serial number during the loading of a message press [*][0]. Insertion of a serial number in real time memory load will halt the real time loading of the pause. The next keyed character will restart pause loading. When the power switch is turned on, the serial number is set to 01.

If the serial number has incremented, it may be reset to 01 **in the memory LOAD mode** by pressing [*][*][0].

The serial number may be changed to any number between 01 and 9999 in the keyer memory send mode by pressing [*][*][0][N][N][N][N][#] where N N N N is the one to four digit serial number desired.

Example: A starting serial number of 971 is desired. Press [*][*][0][9][7][1][#]. The next serial number sent will be 971.

7. **Extra Word or Character Spaces**
In the automatic memory load mode, one word space is loaded after keying is halted. If desired, additional word (7 space length) or character (3 space length) may entered. Each time [*][*][8] is pressed, an additional word space will be loaded and each time [*][8] is pressed an additional character space will be loaded.

Insertion of a word or character space in real time memory loading will stop the real time load of a pause, the next keyed character will restart pause loading.

8. **Memory Full Warning**
When the memory is within about 20 characters of being full, The MEMORY FULL LED will light. When the memory is completely full, the CW sidetone pitch will decrease. At this point, load is automatically terminated. If further loading is desired, it will be necessary to erase one of the other messages.

9. **Semi-Auto (bug) Memory Loading**
Messages may be entered in the semi-automatic mode. During memory send, the messages will be sent with the selected dot and dash ratio and the keyer will revert to automatic operation. If the paddle has contact bounce, it will be necessary to connect a 1 μF capacitor across the dash contacts to prevent loading of extra dashes in semi-automatic mode.

Memory Send Operation

1. **Sending a Message**
To start any of the ten messages, switch out of the memory LOAD mode and press the digit of the desired message location. The message will start when the key pad button is released.

Example: To start message 6, press and release [6].

2. **Interrupting and Restarting a Message**
A message being sent from memory may be interrupted by pressing the pound sign key [#] or by tapping either of the keyer paddles. The keyer then enters normal operation and a hand keyed message may be sent.

The interrupted message may either be restarted at the beginning by pressing the digit of the message, or resumed from the point of interruption by pressing [*][5]. If the message has completed, pressing [*][5] will start the next message, except for message 9 (Remember, memories are numbered 0 through 9).

3. **Serial Numbers in Memory Send**
   The serial number will automatically incremented when a message containing a serial number is completed. If the message is interrupted, the serial number will not be incremented.

   A new starting serial number may be loaded, in memory send mode by pressing [*][*][0][N][N][N][N], where N N N N is the new, one to four digit, serial number.

   The previous serial number may be repeated by pressing, in memory send mode, [*][0] before starting the message. The same serial number will continue to be sent as long as the message number is preceeded by [*][0].

Editing Messages in Memory

1. **Edit Capabilities**
   Messages in memory may have additions placed anywhere in the message and deletions from any point in the message to the end of the message.

2. **Insertion**
   To insert additional text in an existing message, play the message in memory send mode and halt the message at the desired point with either paddle or the pound [#] key. Switch to memory load, press [*][5] and key the desired addition. Switch back to memory send **without** pressing [#].

   If the insertion is at the very beginning of a message, switch to memory load, press the digit of the message location and key in the desired addition, then switch back to memory send **without** pressing [#].

3. **Deletion**
   During message loading, operation of the pound [#] key signals the end of message and erase the previous message from that point to the end of that message location. This may be used for partial message deletion as well as complete message erasure.

   For a partial deletion, in memory send mode, play the message to desired point and halt it with either paddle or pound [#] key. Switch to memory load, and press [*][5]. At this point additional message text may be entered if desired. Press the pound [#] key. The message will be terminated at this point and the remaining text of the message will be deleted.

Automatic Message Repeat

1. **Message Location**
   The CK-2 will continuously repeat any message stored in memory location 1.

2. **Delay Interval**
   The delay interval (time from completion to message to next beginning) can be set from approximately 2 seconds to 2 minutes with the REPEAT DELAY control knob.

3. **Operation**
   Rotating the REPEAT DELAY knob clockwise enables the Automatic Message Repeat function. The message in memory location 1 will start to be sent after a time interval determined by the position of the knob. Rotating further clockwise decrease the delay.

   The message being sent can be interrupted with the paddle or [#] key as before, but with a difference. If no other action is taken after the interruption, the message will restart at the beginning after the delay period. Anytime during this period, a hand keyed message may be sent. The stored message will restart when no characters have been manually sent for a period of time equal to the delay setting.

APPENDIX A

Common Character Set

A •—	O ———	2 ••———
B —•••	P •——•	3 •••——
C —•—•	Q ——•—	4 ••••—
D —••	R •—•	5 •••••
E •	S •••	6 —••••
F ••—•	T —	7 ——•••
G ——•	U ••—	8 ———••
H ••••	V •••—	9 ————•
I ••	W •——	Period •—•—•—
J •———	X —••—	Comma ——••——
K —•—	Y —•——	Hyphen —••••—
L •—••	Z ——••	Fraction bar —••—•
M ——	0 —————	Question mark ••——••
N —•	1 •————	Double dash —•••—

Less Common Characters

Colon ———•••	Understood •••—•
Semicolon —•—•—•	Wait $\overline{AS}$ •—•••
Parenthesis —•—•—	End of Work $\overline{SK}$ •••—•—
Apostrophe •————•	Break $\overline{BK}$ —•••—•—
Exclamation point —•—•—	End of Message $\overline{AR}$ •—•—•
Quote •—••—•	

Trainer Character Error

In the Less Common Character set, the "parenthesis" has been accidentally coded incorrectly. It will sent as ————•— instead of —•——•—, which makes the difficult character set even more difficult!

APPENDIX B

CODE SPEED

The International Morse Code speed is defined by the word "PARIS". It has 10 dots, 4 dashes, 9 intracharacter spaces, 4 intercharacter spaces,and one word space for a total equivalent of 50 code elements (dot or space time). To adjust code speed for various dot-space and dash-space ratios, the number of code elements in the word "PARIS" is used as a reference so that with any allowable dot-space and dash-space ratios, the code speed is correct for the reference word "PARIS".

An old rule of thumb says that to calculate code speed in words per minute, divide the total number of characters sent in one minute, by five. That can be quite misleading!!! This method does not accurately take into account the variable length of individual characters.

Quite often, when the speed of the MM-1 is compared against tape recordings of certain speeds, the MM-1 appears to be sending too slowly, but many tapes on the market are actually sent faster than the labeled speed! Suffice it to say that it is the opinion of AEA that the MM-1 has the most accurate speed calibration of **any** keyer, trainer, or code tape on the market.

ABBREVIATED INSTRUCTIONS

MODE	INSTRUCTION	LIMITS / COMMENTS	AT TURN ON
KEYER:			
Code Speed	[*][*][8][N][N]	02–99 in 1 WPM increments	20 WPM
Tone Increase Decrease	[*][1] [*][*][1]	100 Hz to 2500 Hz	500 Hz
Dot-Space Ratio	[*][2][N][#][N]	0.5–1.5 in 0.1 increments	1.0
Dash-Space Ratio	[*][*][2][N][#][N]	2.0–4.0 in 0.1 increments	3.0
Dot Memory On Off	[*][*][3] [*][3]	N/A	On
Dash-Memory On Off	[*][*][4] [*][4]	N/A	On
Semiautomatic (Bug)		N/A	Off
Automatic		N/A	On
Tune On Off	[*][*][5] Any button or key paddle	N/A	Off
Serial- Repeat Number Set	[*][0] [*][*][0][N][N][N][N][#]	N/A	01
MEMORY LOAD:			
Load	[N] message [#]	N/A	N/A
Erase	[N][#]	N/A	N/A
Serial Num. Insertion	[*][0]	N/A	N/A
Serial Num. Reset to 0	[*][*][0]	N/A	N/A
Serial Number Set	[*][0][N][N][N][N][#]	[1][#] to [9][9][9][9][#]	01
Auto Space Load	[*][*][9]	N/A	On
Real Time Load	[*][9]	N/A	Off
KEYER:			
Additional Spaces:			
Character	(3) [*][8]	N/A	N/A
Word	(7) [*][*][8]	N/A	N/A

NOTE: [N] = one of the numbered buttons.
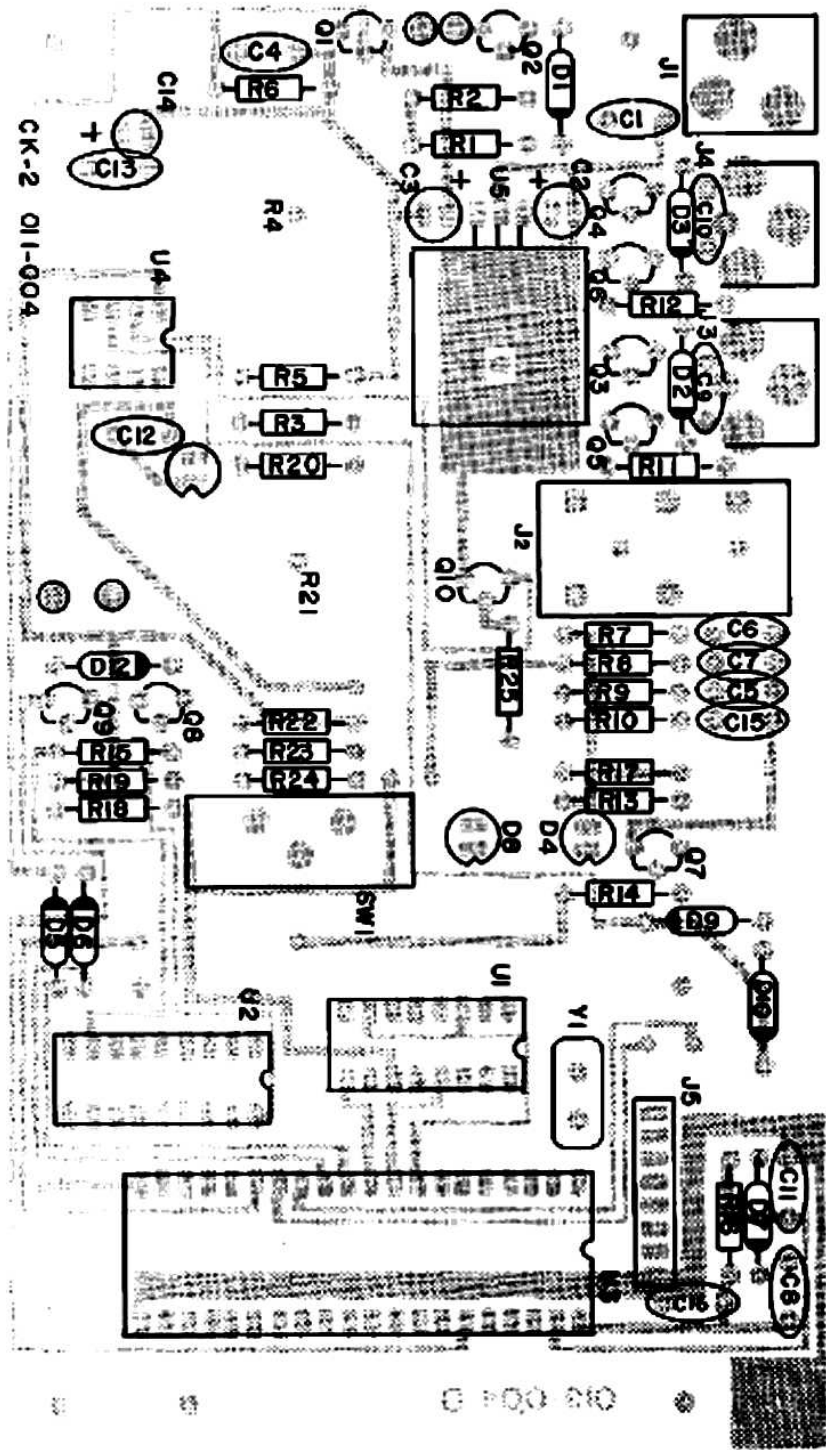
PARTS PICTORIAL
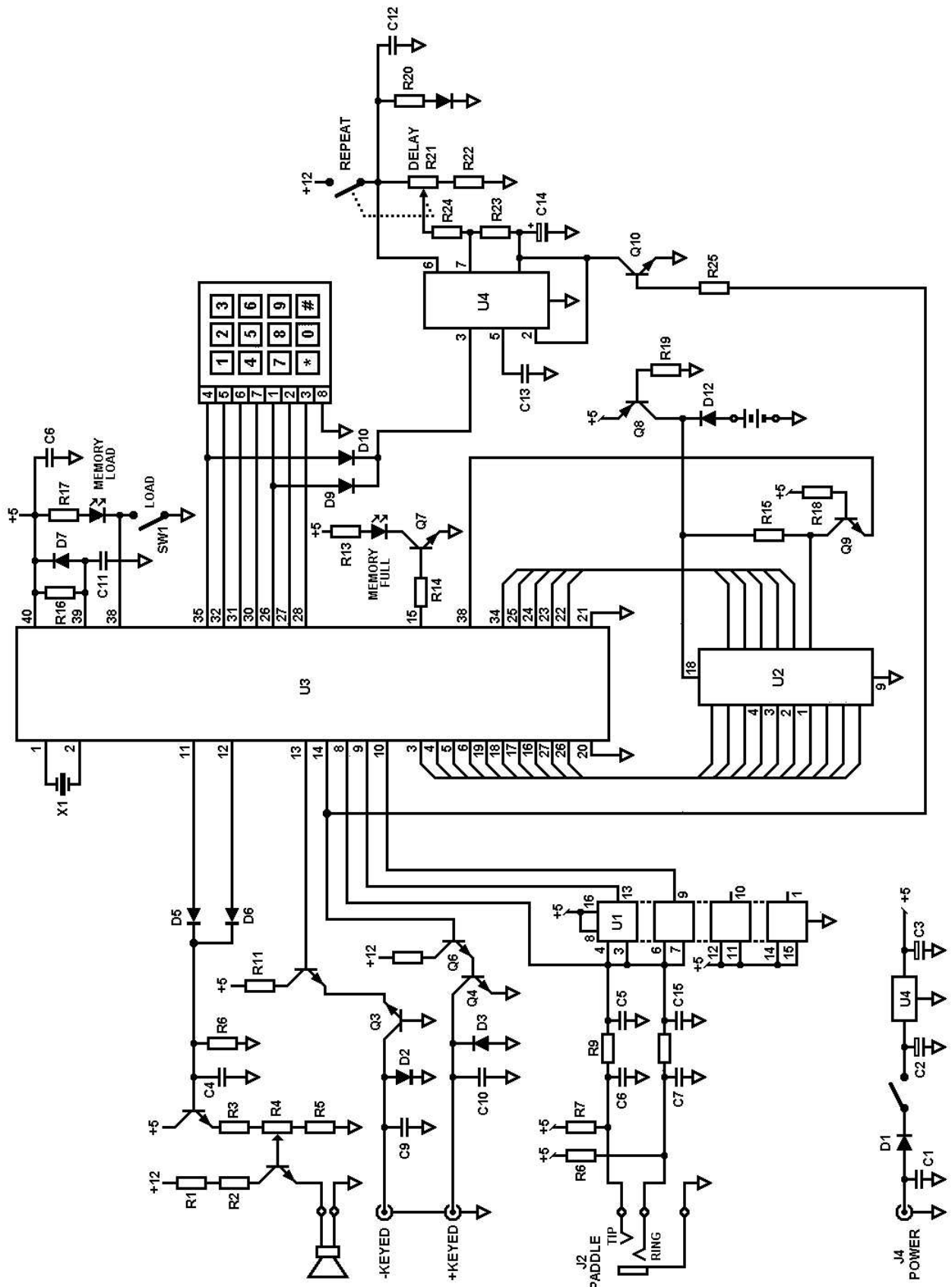
DISABLE CW SIDETONE OR KEYPAD FEEDBACK TONE. If diode D1 is removed, the CW sidetone is disabled. It is recommended that one end of the diode be clipped and the diode be pushed away from the lead. Diode D2 supplies the keypad feedback tone and may be disabled in the same manner.

The Tune warning tone is supplied by both D1 and D2.

CK-2 PARTS LIST

C1, 5, 8, 9, 10, 12, 15	0µ1	50 V disc cer
C6, 7, 11, 13	0µ01	50 V disc cer
C4	0µ0047	50 V disc cer
C2, 14	6µ8	50 V dipped tantalum
C3	10µ	25 V electrolytic
D5, 6, 7, 9, 10	1N4148	
D2, 3, 12	1N4006	
D1	1N4003	
D4, 8, 11	MV5025	
Q1, 5, 6, 7, 9, 10	2N3904	
Q2	MPS6561	
Q3	MPSA92	
Q4	MPSA42	
Q8	2N3906	
R1, 2	13 Ω	½ W, 5 %, Carbon Comp
R3, 13, 17	330 Ω	¼ W, 5 %, Carbon Comp
R4, 21	1 k	pot w switch, audio taper
R5	240 Ω	¼ W, 5 %, Carbon Comp
R6, 9, 10	47 k	¼ W, 5 %, Carbon Comp
R7	2k4	¼ W, 5 %, Carbon Comp
R8, 19, 20	1 k	¼ W, 5 %, Carbon Comp
R11	120 Ω	¼ W, 5 %, Carbon Comp
R12	510 Ω	¼ W, 5 %, Carbon Comp
R14	4k7	¼ W, 5 %, Carbon Comp
R15, 18	15 k	¼ W, 5 %, Carbon Comp
R16, 23, 25	1 k	¼ W, 5 %, Carbon Comp
R22	1k8	¼ W, 5 %, Carbon Comp
U1	CD4044B	
U2	PD444C	
U3	AEA 1980 MMK	
U4	555 Timer	
U5	7805 Voltage regulator	
X1	4.000 MHz Xtal	
S1	Part of R4	
S2	SPST Slide SW	

TECHNICAL SPECIFICATIONS

Keyer speed range: 1 to 99 WPM

CMOS Memory: 4096 bits (approximately 500 Morse characters)

Keying output: Grid block –300 V, max. 30 mA
                                max. Cathode/Transistor 300 V, max. 200 mA

Serial number range: 01 to 9,999

Auto Repeat Delay range: approximately 1 second to 2 minutes

Dot memory On/Off: program selectable

Dash memory On/Off: program selectable

Dot-space ratio: 0.5 to 1.5

Dash-space ratio: 2.0 to 4.0

Semiautomatic (bug) mode: program selectable

Memory keep-alive: holder provided for two size AA batteries for up to 12 months
                                of memory retention. Batteries are automatically switched on
                                only upon removal of external 13 volt source.

Power required: 10 – 15 VDC at 200 mA

Weight: 1 lb. 12 oz.

Dimensions: 6.6" deep × 7.3" wide × 2.75" high